

**TRANSLATION****PATENT COOPERATION TREATY****PCT****INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

|  |  |   |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
|--|--|---|-----------------------|-------------------------------------|-----------|---------------------|--------------------------|------------|----------|--------------------------|-------------|--|--------------------------|------------|----------------------------|-------------------------------------|-----------|---|-------------------------------------|------------|-------------------------|--------------------------|-------------|--|--------------------------|--------------|---|
| Applicant's or agent's file reference<br><b>JHTK-91-PCT</b>  |  | FOR FURTHER ACTION  | See Form PCT/IPEA/416 |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| International application No.<br><b>PCT/JP2004/012726</b>  | International filing date ( <i>day/month/year</i> )<br><b>02.09.2004</b> | Priority date ( <i>day/month/year</i> )<br><b>05.09.2003</b>  |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| International Patent Classification (IPC) or national classification and IPC<br><b>H01M4/58, 4/02, 4/04, 10/40</b>   |  |   |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| Applicant<br><b>HITACHI CHEMICAL CO., LTD.</b>   |  |   |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>5</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input checked="" type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <table><tr><td><input checked="" type="checkbox"/></td><td>Box No. I</td><td>Basis of the report</td></tr><tr><td><input type="checkbox"/></td><td>Box No. II</td><td>Priority</td></tr><tr><td><input type="checkbox"/></td><td>Box No. III</td><td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td></tr><tr><td><input type="checkbox"/></td><td>Box No. IV</td><td>Lack of unity of invention</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Box No. V</td><td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Box No. VI</td><td>Certain documents cited</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VII</td><td>Certain defects in the international application</td></tr><tr><td><input type="checkbox"/></td><td>Box No. VIII</td><td>Certain observations on the international application</td></tr></table> |  |   |                       | <input checked="" type="checkbox"/> | Box No. I | Basis of the report | <input type="checkbox"/> | Box No. II | Priority | <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | <input type="checkbox"/> | Box No. IV | Lack of unity of invention | <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | <input checked="" type="checkbox"/> | Box No. VI | Certain documents cited | <input type="checkbox"/> | Box No. VII | Certain defects in the international application | <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |
| <input checked="" type="checkbox"/>  | Box No. I  | Basis of the report   |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| <input type="checkbox"/>   | Box No. II   | Priority  |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| <input type="checkbox"/>   | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| <input type="checkbox"/>   | Box No. IV   | Lack of unity of invention  |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| <input checked="" type="checkbox"/>  | Box No. V  | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| <input checked="" type="checkbox"/>  | Box No. VI   | Certain documents cited   |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| <input type="checkbox"/>   | Box No. VII  | Certain defects in the international application  |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| <input type="checkbox"/>   | Box No. VIII   | Certain observations on the international application   |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| Date of submission of the demand   |  | Date of completion of this report   |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| Name and mailing address of the IPEA/JP  |  | Authorized officer  |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |
| Facsimile No.  |  | Telephone No.   |                       |                                     |           |                     |                          |            |          |                          |             |  |                          |            |                            |                                     |           |   |                                     |            |                         |                          |             |  |                          |              |   |

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012726

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-12, 14-18 as originally filed/furnished
- pages\* 13 received by this Authority on 28.06.2005
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 1-7 as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets fig. 1 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☒ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☒ the description, pages 3, 6, 7
- ☒ the claims, nos. 2
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012726

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

|                               |            |     |
|-------------------------------|------------|-----|
| Novelty (N)                   | Claims 1-4 | YES |
|                               | Claims 5-7 | NO  |
| Inventive step (IS)           | Claims 1-4 | YES |
|                               | Claims 5-7 | NO  |
| Industrial applicability (IA) | Claims 1-7 | YES |
|                               | Claims     | NO  |

## 2. Citations and explanations (Rule 70.7)

[Citations]

The following documents are all cited in the international search report.

Document 1: JP 2000-203818 A (Hitachi Chemical Co., Ltd.), 25 July 2000, claims 1 to 10 and the entirety of the Detailed Explanation of the Invention (Family: none)

Document 2: JP 10-236809 A (Hitachi Chemical Co., Ltd.), 08 September 1998, claims 1 to 12 and the entirety of the Detailed Explanation of the Invention & EP 918040 A1 & EP 1220349 A1 & US 2001/33822 A1 & US 2002/6376 A1 & WO 98/06679 A1

Document 3: JP 2002-222650 A (Hitachi Chemical Co., Ltd.), 09 August 2002, claims 1 to 9 and the entirety of the Detailed Explanation of the Invention & EP 1361194 A1 & WO 2002/59040 A1 & US 2004/115117 A1

Document 4: JP 5-307977 A (Mitsubishi Petrochemical Co., Ltd.), 19 November 1993, claims 1 and 2 (Family: none)

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

## [Explanations]

It is impossible to deny the novelty and inventive step of claims 1 to 4 in relation to the disclosures in any of the documents that are indicated above. The documents in question do not disclose or suggest the effects that are set forth in the description of the present application, which are attributed to delimiting the proportion of the carbon layer that is formed upon the surface of each graphite particle.

Claims 5 to 7 lack novelty and do not involve an inventive step in the light of the disclosures in document 1. Document 1 (the detailed description of the invention and the examples) presents a feature wherein a negative electrode material for use in a secondary battery that has a non-aqueous electrolyte is produced by means of the steps that are set forth in claim 5 of the present application, and document 1 further indicates that the resulting carbon material is used in a negative electrode, and that a battery is configured therefrom.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012726

## Box No. VI Certain documents cited

## 1. Certain published documents (Rule 70.10)

| Application No.<br>Patent No. | Publication date<br>(day/month/year) | Filing date<br>(day/month/year) | Priority date (valid claim)<br>(day/month/year) |
|-------------------------------|--------------------------------------|---------------------------------|---|
| JP 2003-272625 A<br>(E, A)    | 26.09.2003                           | 15.03.2002                      |   |
| JP 2004-95426 A<br>(E, A)     | 25.03.2004                           | 02.09.2002                      |   |

## 2. Non-written disclosures (Rule 70.9)

| Kind of non-written disclosure | Date of non-written disclosure<br>(day/month/year) | Date of written disclosure<br>referring to non-written disclosure<br>(day/month/year) |
|--------------------------------|--|---|
|--------------------------------|--|---|

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Box I.

The amendments indicated below, which have also been appended to this report, can be considered to go beyond the scope of the disclosures in the present application as originally filed for the reasons that are indicated below. Consequently, the present report was drafted as if the amendments in question had not been submitted.

In claim 2 and on pages 3, 6 and 7 of the description, the disclosure " $R = I_{1580} / I_{1350}$ " is amended so as to read " $R = I_{1350} / I_{1580}$ ," and the relative equations in the disclosures pertaining to the ratios of the peak heights that are associated with said amendments are likewise changed. Furthermore, in the written response submitted 28 June 2005, the applicant asserts that negative electrode carbon materials that are delimited by the equation " $R = I_{1350} / I_{1580}$ " are well known, as disclosed in documents 3 and 4, and that therefore said amendments do not add novel features to the invention in question, but rather merely correct errors that are present in the application as originally filed.

However, a careful examination of the description of the present application as originally filed showed that the application does not disclose or suggest a delimiting equation wherein " $R = I_{1350} / I_{1580}$ ," and instead the peak ratios are delimited by the equation " $R = I_{1580} / I_{1350}$ " throughout the entire document. Furthermore, a technical investigation of the feature in

## Supplemental Box

question revealed that both the value I1580 and the value I1350 express peak strengths of specific energy ranges within the Raman spectrum, and thus it would be possible to select either value as a reference, as necessary, depending on the manner in which the strength ratio of the two peaks is taken. Consequently, although the applicant concludes that the feature in question is an error based upon the disclosures in documents 3 and 4, as is indicated above, in fact the disclosures in documents 3 and 4 merely demonstrate the manner in which the strength ratio of the two peaks was handled within said documents. Such being the case, the amendments in question are not based upon the content that is set forth in the description of the present application.

In addition, the ratio " $R = I1580 / I1350$ " cannot be said to be impossible within the technical field in question (for example, the same peak ratio is used in the document JP 2003-272624 A). As a result, the amendments in question do in fact add a novel feature, and thus can be considered to go beyond the scope of the disclosures in the present application as originally filed.